Remarks

Claims 1 to 3, 5 to 10 and 12 to 20 are in this application.

Reconsideration of the rejections of the claims is requested.

Claim 16 has been amended to conform with the specification.

Claim 1 has been amended to more particularly point out that the top coat is "adhered directly on said bond coat". Accordingly, a rejection of claim 1 as being anticipated by either one of Schilbe or Nissley is not warranted.

Claims 2, 3, 5, 6 and 7 depend for claim 1 and are believed to be allowable for similar reasons.

Claim 8 has been amended in similar fashion to claim 1 to more particularly recite that the top coat is "adhered directly on said bond". Accordingly, for reasons as expressed above and of record, a rejection of claim 8 as being anticipated by either of Schilbe or Nissley is not warranted pursuant to the provisions of 35 USC 102.

Claims 9, 10, 12 and 13 depend from claim 8 and are believed to be allowable for similar reasons.

Claim 15 has been rejected as being anticipated by Farmer.

Farmer is directed to a process of removing a coating deposit in a hole in an air-cooled combuster liner 10 of a gas turbined engine. The coating 20 may be either a metallic material, a ceramic material or both. Farmer describes the coating 20 as being of a thickness of 0.004 to about 0.010 inches for a metallic coating and of about 0.003 to about 0.020 inches for a ceramic coating. (see column 5, lines 37 to 48). In another embodiment, Farmer describes a panel being plasma sprayed with a MCrAlY bond coat having a thickness of about 0.006 to about 0.008 inch followed by a ceramic coating

deposited to a thickness to about 0.020 inch in two separate deposition steps. (See column 10, lines 13 to 39).

Claim 15, as amended, requires a step of spraying a high temperature yttria stabilized zirconia to form "a single layer abradable top layer" of a thickness of from "0.025 inches to 0.060 inches". Farmer does not describe or teach such a process. First, any single deposition step of applying a ceramic coating in Farmer produces a coating of only about 0.010 inch. Of note, there is no description as to the number of steps required for the ceramic coating described in column 5, lines 42 to 48 is required. In any event, there is no teaching of a ceramic coating having a thickness as recited in claim 15. Accordingly, a rejection of claim 15 as being anticipated by Farmer is not warranted pursuant to the provisions of 35 USC 102.

Of note, the coating 20 of Farmer is employed on a component of a gas turbine engine that is in a combustion section and not to a hot turbine section. Thus, considerations of the type of coatings applied to the parts of a gas turbine engine differ significantly. Typically, the gas flows and the heating are different in the combustion section of the gas turbine engine from a hot turbine section. Further, the alloys used to make the component parts are very different. Still further, a liner is exposed to only a hot gas that flows past the liner whereas a shroud cover plate is physically impacted by a high speed and massive blade/bucket. Primarily, the liner coating has only to survive heat from gas whereas the coating on a shroud cover plate needs to survive abrasion and impact wear. The technical approaches to minimizing these are different.

By way of example, Farmer and Nissley refer to parts used in different sections of a gas turbine. Although similar coatings are used in these sections, the design and

implementation are conducted independently, primarily because the mechanics of fluid flow and heat transfer are different.

The ceramic coating of Farmer is very thin and is applied for purposes of testing a water jet stripping method to remove coating material about an opening in the liner 10. Further, it is well known that a ceramic coating is very brittle and tends to spall at high thicknesses. For example at thicknesses greater than 0.025 inches.

Claim 16 depends from claim 15 and is believed to be allowable for similar reasons.

Claim 17 has been rejected as being anticipated by Farmer. However, as amended, claim 17 requires "an abradable single layer top coat" of a thickness of from "0.025 inches to 0.060 inches". For reasons as expressed above, a rejection of claim 17 as being anticipated by Farmer or as being obvious over Farmer is not warranted pursuant to the provisions of 35 USC 102 and 103.

Claim 18 depends from claim 17 and is believed to be allowable for similar reasons.

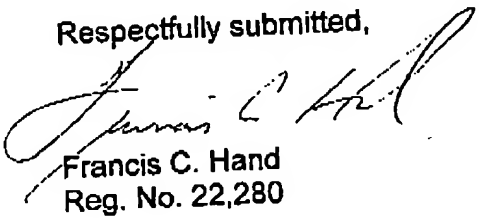
Claim 4 has been rewritten as claim 19. In this respect, the Examiner has alleged that it would have been obvious to apply the ceramic coating of Schilbe with a thickness sufficient to provide thermal insulation. Issue is taken in this respect. Typically, one has to compromise between thermal insulation versus expected mechanical properties. Thus, one can never achieve the "ideal" thermal barrier coating (TBC) in terms of insulation and mechanical property. This is the reason why most TBC are under 0.020 inch (20 mils) thick. Typically, the industry would like to obtain a minimum of 1500 to 2000 psi bond strength. Thus, using standard processes and applying a typical TBC such as that described in any one of Schilbe, Nissley or Farmer,

the thickness is usually limited to 20 mils. In contrast, applicant's invention is not directed to a typical thermal barrier coating and is not applied in a typical fashion. As a consequence of applicant's invention, applicant has been "surprisingly" able to apply a coating that is four (4) times as thick as the one described in Schilbe. Accordingly, claim 19 is believed to be further allowable over the references of record.

Claim 20 depends from claim 19 and is believed to be allowable for similar reasons.

The application is believed to be in condition for allowance and such is respectfully requested.

Respectfully submitted,



Francis C. Hand
Reg. No. 22,280

CARELLA,BYRNE,BAIN,GILFILLAN,
CECCHI,STEWART & OLSTEIN
5 Becker Farm Road
Roseland, NJ 07068
Phone No. 973-994-1700
Fax: 973-994-1744

#248317